

Patent claims

1. An apparatus for the fine blanking of workpieces from a material (1), comprising a press plate (10), which is under the pressure of a V-ring cylinder (13) and has a V-ring (11), and a blanking punch (9) which is guided in the press plate (10) and to which a die plate (17) with counterholder (16) (ejector) is assigned at a ram (7), characterized in that the ram (7) is supported against at least one compensation cylinder (22) which is hydraulically connected to the V-ring cylinder (13).

2. The apparatus as claimed in claim 1, characterized in that four compensation cylinders (22) are provided.

3. The apparatus as claimed in claim 1 or 2, characterized in that a piston (23) is arranged in the compensation cylinder(s) (22) and is firmly connected to the ram (7) via a piston rod (24).

4. The apparatus as claimed in claim 3, characterized in that an effective cross-sectional area of the compensation piston(s) (23) is equal to an effective cross-sectional area of a piston (12) of the V-ring cylinder.

5. The apparatus as claimed in at least one of claims 1 to 4, characterized in that the V-ring cylinder (13) is arranged on a crosshead (3) of a machine frame (2).

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6. The apparatus as claimed in at least one of claims 1 to 5, characterized in that the ram (7) is supported against at least one main cylinder (19.1, 19.2).

7. The apparatus as claimed in claim 6, characterized in that a piston (20.1, 20.2) of the main cylinder (19.1, 19.2) has an effective cross-sectional area which is greater than that of the compensation piston(s) (23).

8. The apparatus as claimed in at least one of claims 1 to 7, characterized in that the hydraulic connection (25) between compensation cylinder (22) and V-ring cylinder (13) also has a connection (26) to an oil tank via a logic valve (27).